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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
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=> b reg

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	41.14	41.35

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-7.02	-7.02

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STRUCTURE FILE UPDATES: 14 NOV 2007 HIGHEST RN 953817-57-7
DICTIONARY FILE UPDATES: 14 NOV 2007 HIGHEST RN 953817-57-7

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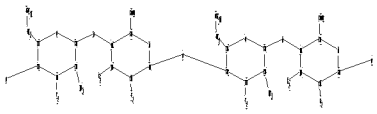
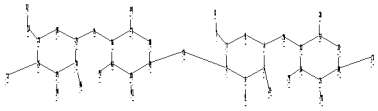
Uploading C:\Documents and Settings\jlau1\My Documents\10518303 - epiK5\free amine
k5 structure - 2.str





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7 8 9 10 17 18 20 21 22 31 32 33 34 35 42 43 44 45 46
ring nodes :
1 2 3 4 5 6 11 12 13 14 15 16 25 26 27 28 29 30 36 37 38 39
40 41
chain bonds :
1-9 2-45 3-7 5-10 6-22 7-8 10-11 12-20 14-21 15-18 16-17 25-34 26-33
27-31 29-35 30-46 31-32 35-36 37-44 39-45 40-43 41-42
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 11-12 11-16 12-13 13-14 14-15 15-16 25-26
25-30 26-27 27-28 28-29 29-30 36-37 36-41 37-38 38-39 39-40 40-41
exact/norm bonds :
1-2 1-6 1-9 2-3 2-45 3-4 4-5 5-6 5-10 6-22 10-11 11-12 11-16 12-13
13-14 14-15 14-21 15-16 15-18 16-17 25-26 25-30 25-34 26-27 26-33 27-28
28-29 29-30 29-35 30-46 35-36 36-37 36-41 37-38 38-39 39-40 39-45 40-41
40-43 41-42
exact bonds :
3-7 7-8 12-20 27-31 31-32 37-44

G1:H,SO3H

G2:OH,OSO3H

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS
11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:CLASS 18:CLASS 20:CLASS
21:CLASS 22:CLASS 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:Atom 31:CLASS
32:CLASS 33:CLASS 34:CLASS 35:CLASS 36:Atom 37:Atom 38:Atom 39:Atom
40:Atom 41:Atom 42:CLASS 43:CLASS 44:CLASS 45:CLASS 46:CLASS

L6 STRUCTURE UPLOADED

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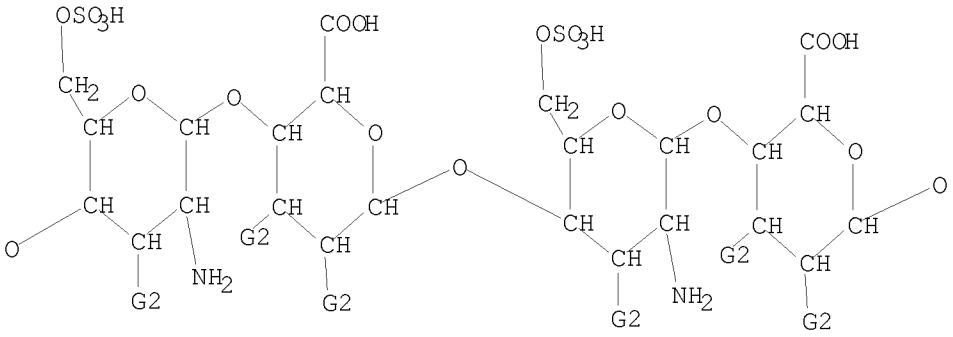
L6 HAS NO ANSWERS
L6 STR



G1 H,SO3H

G2 OH,OSO3H

Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SEARCH INITIATED 08:23:22 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 29 TO ITERATE

100.0% PROCESSED 29 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 257 TO 903
PROJECTED ANSWERS: 1 TO 80

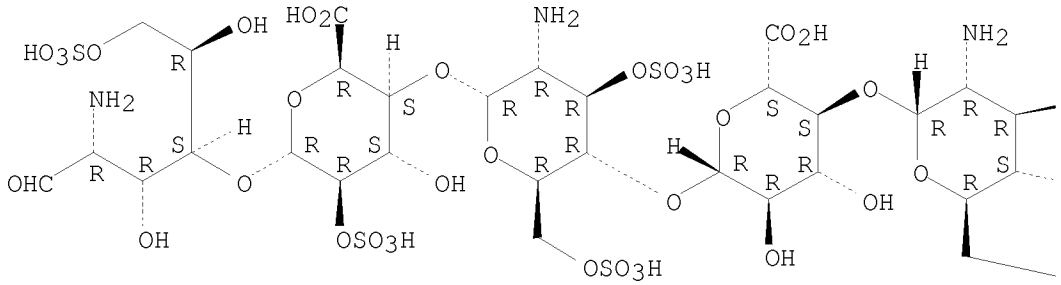
L7 1 SEA SSS SAM L6

=> d l7 scan

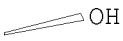
L7 1 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN D-Glucose, O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate) (9CI)
MF C30 H51 N3 O40 S5

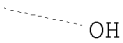
Absolute stereochemistry.

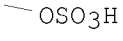
PAGE 1-A



PAGE 1-B







PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

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FULL SCREEN SEARCH COMPLETED -      760 TO ITERATE

100.0% PROCESSED      760 ITERATIONS                                  11 ANSWERS
SEARCH TIME: 00.00.01

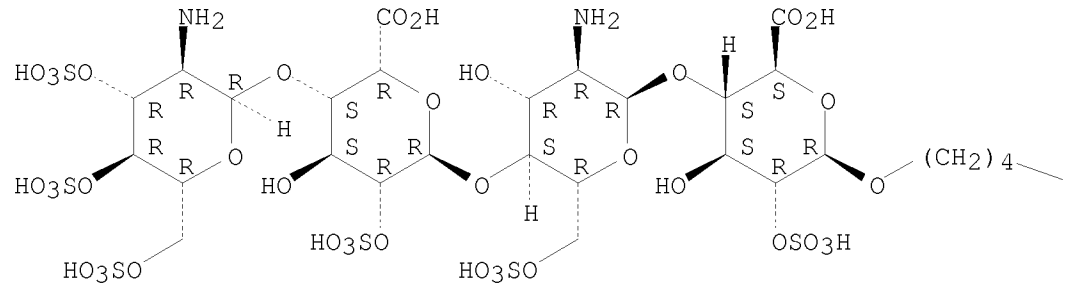
L8           11 SEA SSS FUL L6

=> d l8 scan

L8   11 ANSWERS   REGISTRY  COPYRIGHT 2007 ACS on STN
IN   β-D-Glucopyranosiduronic acid, pentyl O-2-amino-2-deoxy-3,4,6-tri-O-
     sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-
     idopyranuronosyl-(1→4)-O-2-amino-2-deoxy-6-O-sulfo-α-D-
     glucopyranosyl-(1→4)-, 2-(hydrogen sulfate)
MF   C29 H50 N2 O39 S6
CI   COM

Absolute stereochemistry.
```

PAGE 1-A



PAGE 1-B

Me

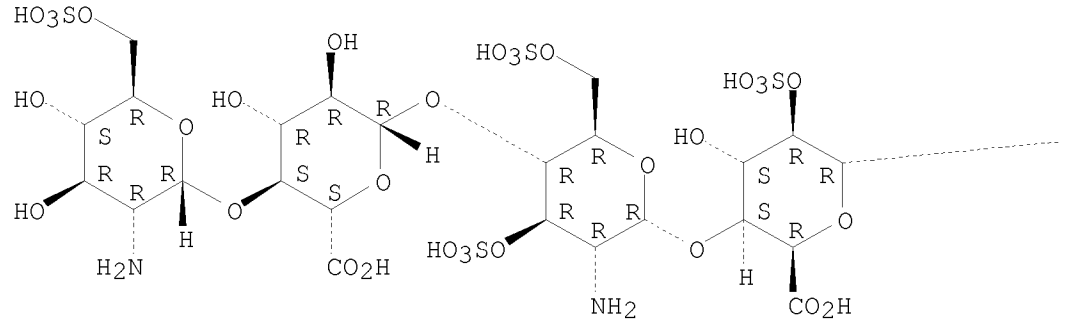
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L8 11 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN β-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate), heptasodium salt (9CI)
MF C31 H53 N3 O40 S5 . 7 Na

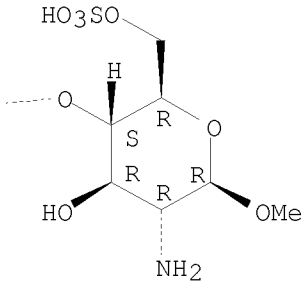
Absolute stereochemistry.

PAGE 1-A



●7 Na

PAGE 1-B

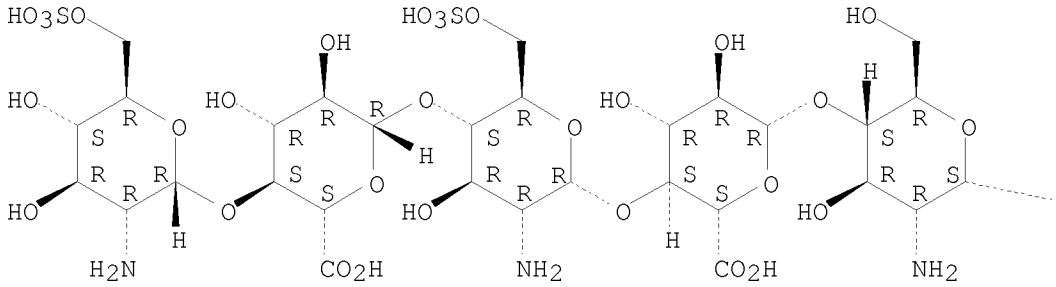


HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L8 11 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN α-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-2-amino-2-deoxy-
MF C31 H53 N3 O31 S2
CI COM

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

OMe

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

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COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                         ENTRY    SESSION
FULL ESTIMATED COST                                     173.00     214.35

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                                                         ENTRY    SESSION
CA SUBSCRIBER PRICE                                       0.00      -7.02

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FILE LAST UPDATED: 14 Nov 2007  (20071114/ED)

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=> s l8
L9            8 L8

=> d l8 scan
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      23955901 PY<=2003
L10           7 L9 AND PY<=2003

=> d l9 1-8 ibib abs hitstr

L9   ANSWER 1 OF 8  CAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:        2004:921548  CAPLUS
DOCUMENT NUMBER:         142:89064
TITLE:                   Competing fragmentation processes in tandem mass
                         spectra of heparin-like glycosaminoglycans
AUTHOR(S):               Naggar, Estee F.; Costello, Catherine E.; Zaia, Joseph
CORPORATE SOURCE:        Department of Biochemistry, Boston University School
                         of Medicine, Boston, MA, USA
SOURCE:                  Journal of the American Society for Mass Spectrometry
                         (2004), 15(11), 1534-1544
                         CODEN: JAMSEF; ISSN: 1044-0305
PUBLISHER:               Elsevier Inc.
DOCUMENT TYPE:           Journal
LANGUAGE:                English
AB   Heparin-like glycosaminoglycans (HLGAGs) are highly sulfated, linear
     carbohydrates attached to proteoglycan core proteins and expressed on cell
     surfaces and in basement membranes.  These carbohydrates bind several
```

families of growth factors and growth factor receptors and act as coreceptors for these mols. Tandem mass spectrometry has the potential to increase our understanding of the biol. significance of HLGAG expression by providing a facile means for sequencing these mols. without the need for time-consuming total purification The challenge for tandem mass spectrometric anal. of HLGAGs is to produce abundant ions derived via glycosidic bond cleavages while minimizing the abundances of ions produced from elimination of the fragile sulfate groups. This work describes the competing fragmentation pathways that result from dissociation of high neg. charge state ions generated from HLGAGs. Glycosidic bond cleavage ion formation competes with losses of equivalent of H_2SO_4, resulting in complex ion patterns. For the most highly sulfated structure examined, an octasulfated tetramer, an unusual loss of charge from the precursor ion was observed, accompanied by low abundance ions originating from subsequent backbone cleavages. These results demonstrate that fragmentation processes competing with glycosidic bond cleavages are more favored for highly sulfated HLGAG ions. In conclusion, reduction of charge-charge repulsions, such as is achieved by pairing the HLGAG ions with metal cations, is necessary in order to minimize the abundances of ions derived via fragmentation processes that compete with glycosidic bond cleavages.

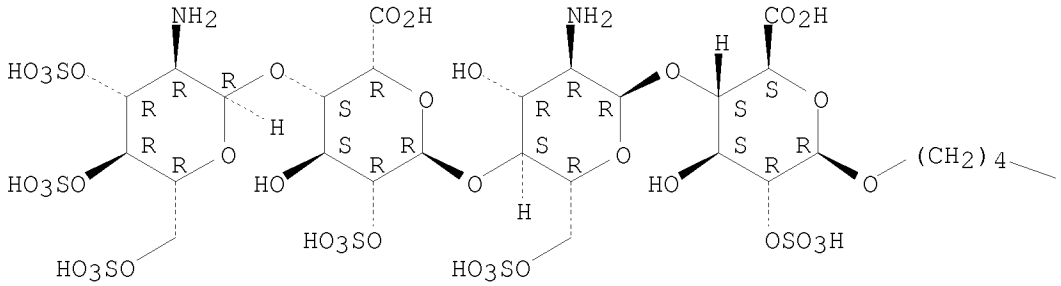
IT 525593-68-4
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(competing fragmentation processes in tandem mass spectra of heparin-like glycosaminoglycans)

RN 525593-68-4 CAPLUS

CN β-D-Glucopyranosiduronic acid, pentyl O-2-amino-2-deoxy-3,4,6-tri-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-, 2-(hydrogen sulfate) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

Me

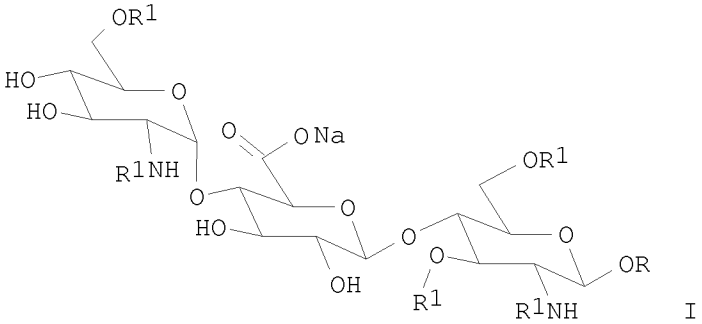
REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:221700 CAPLUS
DOCUMENT NUMBER: 138:221788
TITLE: Synthetic heparin pentasaccharides via glycosylation reaction using different protecting groups
INVENTOR(S): Seifert, Joachim; Singh, Latika; Ramsdale, Tracie Elizabeth; West, Michael Leo; Drinnan, Nicholas Barry
PATENT ASSIGNEE(S): Alchemia Pty Ltd., Australia
SOURCE: PCT Int. Appl., 207 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2003022860	A1	20030320	WO 2002-AU1228		20020906
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
CA 2459562	A1	20030320	CA 2002-2459562		20020906
AU 2002331426	A1	20030324	AU 2002-331426		20020906
EP 1440077	A1	20040728	EP 2002-766941		20020906
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK					
CN 1558911	A	20041229	CN 2002-821855		20020906
JP 2005505565	T	20050224	JP 2003-526933		20020906
US 2005080042	A1	20050414	US 2004-488677		20040930
AU 2007203325	A1	20070809	AU 2007-203325		20070718
PRIORITY APPLN. INFO.:			AU 2001-7587	A	20010907
			AU 2002-331426	A3	20020906
			WO 2002-AU1228	W	20020906

OTHER SOURCE(S): MARPAT 138:221788
GI



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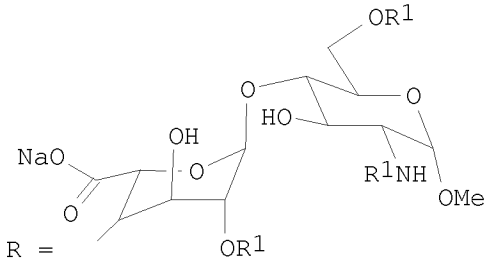


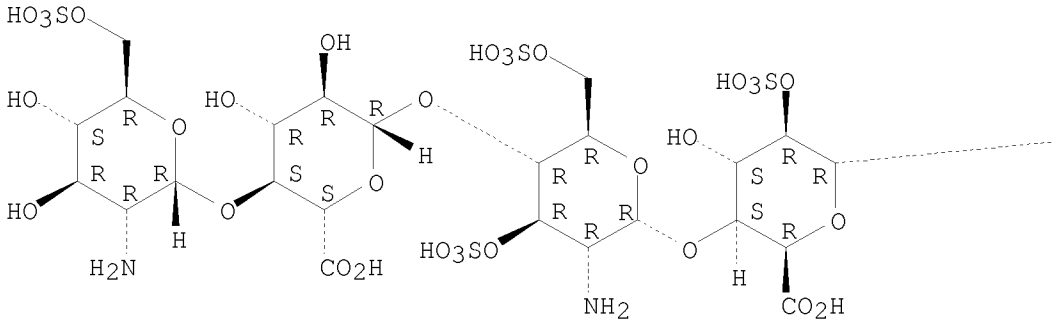
AB Synthetic monosaccharides, disaccharides, trisaccharides, tetrasaccharides and pentasaccharides for use in the preparation of synthetic heparinoids. Thus, heparin pentasaccharide I (R1 = SO3Na) was prepared via glycosylation reaction using different protecting groups.

IT 114870-02-9P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthetic heparin pentasaccharides via glycosylation reaction using different protecting groups)

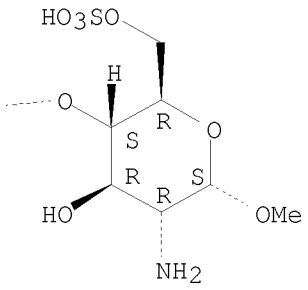
RN 114870-02-9 CAPLUS

CN α-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate), heptasodium salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.



●7 Na



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:69762 CAPLUS
DOCUMENT NUMBER: 138:385647
TITLE: Modular synthesis of heparin oligosaccharides
AUTHOR(S): Orgueira, Hernan A.; Bartolozzi, Alessandra; Schell, Peter; Litjens, Remy E. J. N.; Palmacci, Emma R.; Seeberger, Peter H.
CORPORATE SOURCE: Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA
SOURCE: Chemistry--A European Journal (2003), 9(1), 140-169
CODEN: CEUJED; ISSN: 0947-6539
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:385647

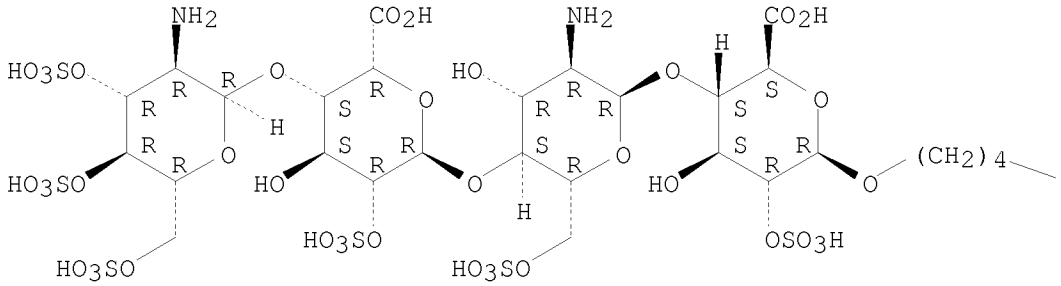
AB A general, modular strategy for the first completely stereoselective synthesis of defined heparin oligosaccharides is described. Six monosaccharide building blocks (four differentially protected glucosamines, one glucuronic and one iduronic acid) were utilized to prepare di- and trisaccharide modules in a fully selective fashion. Installation of the α-glucosamine linkage was controlled by placing a conformational constraint on the uronic acid glycosyl acceptors thereby establishing a new concept for stereochem. control. Combination of disaccharide modules to form trans-uronic acid linkages was completely selective by virtue of C2 participating groups. Coupling reactions between disaccharide modules exhibited sequence dependence. While the union of many glucosamine uronic acid disaccharide modules did not meet any problems, certain sequences proved not accessible. Elaboration of glucosamine uronic acid disaccharide building blocks to trisaccharide modules by addition of either one addnl. glucosamine or uronic acid allowed for stereoselective access to oligosaccharides as demonstrated on the example of a hexasaccharide resembling the ATIII-binding sequence. Final deprotection and sulfation yielded the fully synthetic heparin oligosaccharides.

IT 525593-68-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of heparin oligosaccharides using modular synthesis techniques)
RN 525593-68-4 CAPLUS
CN β-D-Glucopyranosiduronic acid, pentyl O-2-amino-2-deoxy-3,4,6-tri-O-

sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-
idopyranuronosyl-(1→4)-O-2-amino-2-deoxy-6-O-sulfo-α-D-
glucopyranosyl-(1→4)-, 2-(hydrogen sulfate) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

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REFERENCE COUNT: 93 THERE ARE 93 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:574867 CAPLUS
DOCUMENT NUMBER: 137:125357
TITLE: Solid- and solution-phase combinatorial libraries synthesis of heparin and other glycosaminoglycans as potential receptors
INVENTOR(S): Seeberger, Peter H.; Orgueira, Hernan; Schell, Peter
PATENT ASSIGNEE(S): Massachusetts Institute of Technology, USA
SOURCE: PCT Int. Appl., 131 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002058633	A2	20020801	WO 2002-US1772	20020122
WO 2002058633	A3	20021017		

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CA 2435637	A1	20020801	CA 2002-2435637		20020122
AU 2002243630	A1	20020806	AU 2002-243630		20020122
US 2003013862	A1	20030116	US 2002-54724		20020122
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US 2005187381	A1	20050825	US 2005-40834		20050121
PRIORITY APPLN. INFO.:			US 2001-263621P	P	20010123
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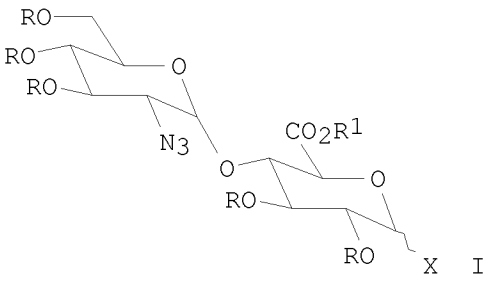
OTHER SOURCE(S): MARPAT 137:125357

GI



AB Described is a modular, general synthetic strategy for the preparation in solution and on a solid support of heparin, heparin-like glycosaminoglycans, glycosaminoglycans and non-natural analogs, e.g. I, wherein X is OH, acyloxy, silyloxy, halide, alkylthio, arylthio, alkoxy, OC(NH)CCl3; R is H, alkyl, aryl, arylalkyl, heteroarylalkyl, silyl, acyl, alkenyloxycarbonyl, aralkyloxycarbonyl; R1 is H, alkyl, aryl, arylalkyl, heteroarylalkyl and derivs. Addnl., the modular strategy provides the basis for the preparation of combinatorial libraries and parallel libraries of defined glycosaminoglycan oligosaccharides. The defined glycosaminoglycan structures may be used in high-throughput screening expts. to identify carbohydrate sequences that regulate a host of recognition and signal-transduction processes. The determination of specific sequences involved in receptor binding holds great promise for the development of mol. tools which will allow modulation of processes underlying viral entry, angiogenesis, kidney diseases and diseases of the control nervous system (no data). Notably, the present invention enables the automated synthesis of glycosaminoglycans in much the same fashion that peptides and oligonucleotides are currently assembled. Thus, n-pentenyl (2-deoxy-2-sodium sulfonatamido-3,4,6-tri-O-sodium sulfonato-α-D-glucopyranosyl)-(1→4)-(sodium 2-O-sodium sulfonato-α-D-idopyranosyluronate)-(1→4)-(2-deoxy-2-sodium sulfonatamido-6-O-sodium sulfonato-α-D-glucopyranosyl)-(1→4)-sodium 2-O-sodium sulfonato-β-D-glucopyranosiduronate was prepared as potential receptors.

IT 444119-15-7P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(solid-phase combinatorial libraries synthesis of glycosaminoglycans as potential receptors)

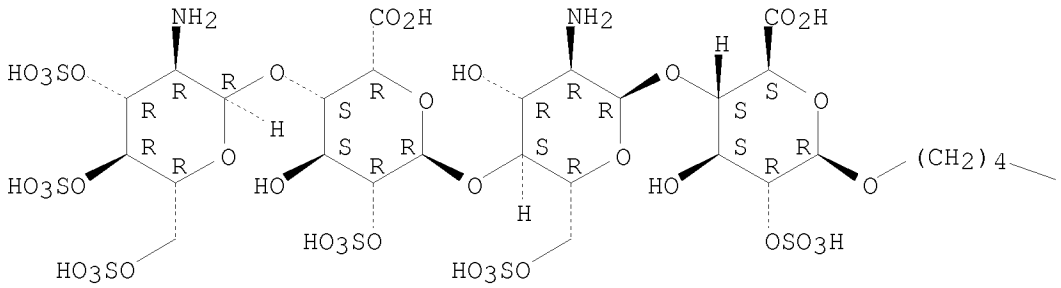
RN 444119-15-7 CAPLUS

CN β-D-Glucopyranosiduronic acid, pentyl O-2-amino-2-deoxy-3,4,6-tri-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-

idopyranuronosyl-(1→4)-O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-, 2-(hydrogen sulfate), octasodium salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.

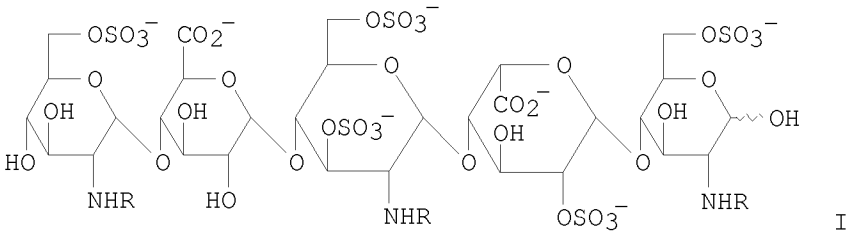
PAGE 1-A



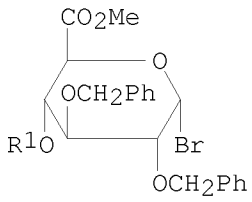
PAGE 1-B

Me

L9 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:198939 CAPLUS
DOCUMENT NUMBER: 112:198939
TITLE: Synthesis of an N-acetylated heparin pentasaccharide and its anticoagulant activity in comparison with the heparin pentasaccharide with high anti-factor-Xa activity
AUTHOR(S): Wessel, Hans Peter; Labler, Ludvik; Tschopp, Thomas B.
CORPORATE SOURCE: Pharm. Res. Dep., F. Hoffmann-La Roche A.-G., Basel, CH-4002, Switz.
SOURCE: Helvetica Chimica Acta (1989), 72(6), 1268-77
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 112:198939
GI



I



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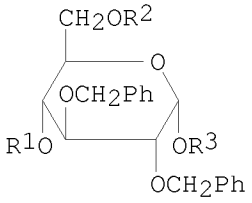

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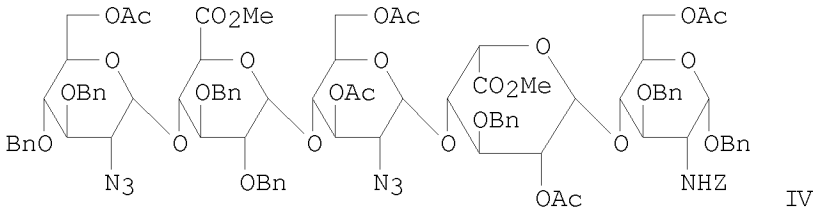


IV

AB The synthesis of heparin pentasaccharide (I; R = Ac) is described. It was assembled from 5 suitably block monosaccharide units. Glucuronic acid building block II (R1 = levulinoyl) was prepared from glucose by direct Jones oxidation of 6-O-trityl derivative III (R1 = levulinoyl, R2 = trityl, R3 =
allyl). The resulting acid was esterified in large amts. using ClCO2Me/base. Me3SiBr proved to be an excellent reagent for the hydrolysis of the prop-1-enyl glycoside. The pentasaccharide IV (Bn = PhCH2) was obtained by a [2+2]+1 synthesis; the glycosylations furnished good to very good yields. The identity of protected oligosaccharides was confirmed by 1H-NMR. Sequential deblocking of the pentasaccharide, O-sulfation, and N-acetylation gave I (R = Ac) which was shown to exhibit .apprx.600 times lower anticoagulant activity than I (R = SO3-).

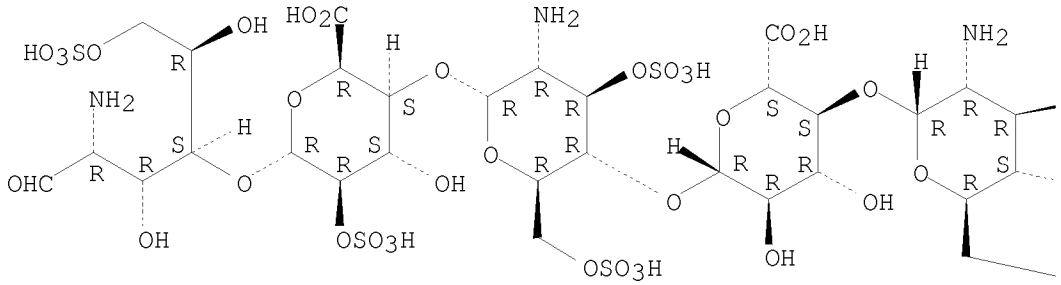
IT 126684-11-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and acetylation of)

RN 126684-11-5 CAPLUS

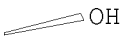
CN D-Glucose, O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate) (9CI) (CA INDEX NAME)

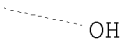
Absolute stereochemistry.

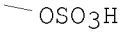
PAGE 1-A



PAGE 1-B







L9 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:574547 CAPLUS
DOCUMENT NUMBER: 111:174547
TITLE: Synthesis of several sulfated and nonsulfated pentasaccharides, corresponding to the E. coli K5 glycosaminoglycan
AUTHOR(S): Kraaijeveld, N. A.; Van Boeckel, C. A. A.
CORPORATE SOURCE: Sci. Dev. Group, Organon Int. B.V., Oss, 5340 BH, Neth.
SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1989), 108(2), 39-50
CODEN: RTCPA3; ISSN: 0165-0513
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 111:174547

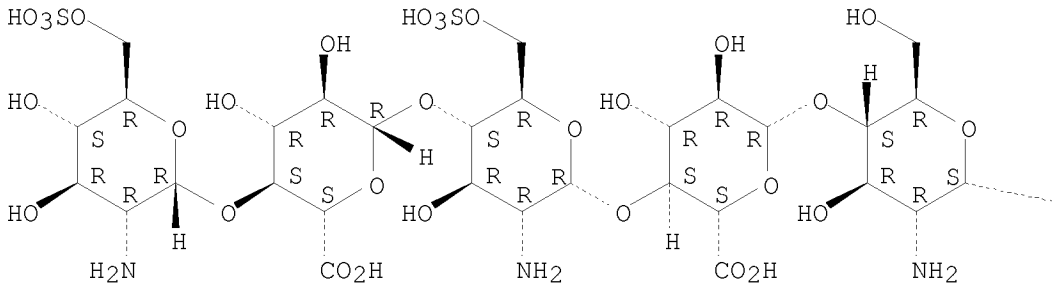
AB The synthesis of 4 pentasaccharides, which are structurally related to the bacterial capsular polysaccharide isolated from Escherichia coli K5 (010/K5/H40), i.e. the so-called K5 antigen, is described. These 4 synthetic compds. comprise a pentasaccharide that is structurally identical to the K5 antigen, 2 pentasaccharides containing 2 and 3 O-sulfated groups, resp., and a pentasaccharide that is O-sulfated on all hydroxy groups. These 4 K5-antigen-related pentasaccharides were synthesized from fully protected pentasaccharides, which were prepared by conventional methods. Structural assignments of the K5-antigen-related pentamers were confirmed by 1H and 13C NMR.

IT 122992-71-6P 122992-73-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and N-acetylation of)
RN 122992-71-6 CAPLUS
CN α-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-

amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-2-amino-2-deoxy-, tetrasodium salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



●4 Na

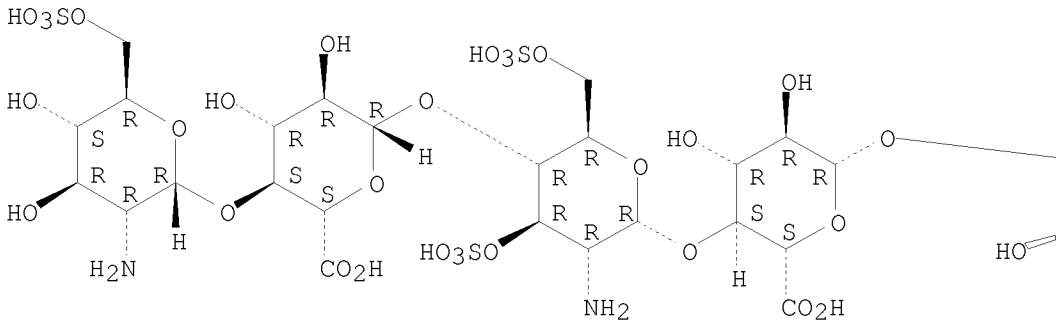
PAGE 1-B

OMe

RN 122992-73-8 CAPLUS
CN α-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-2-amino-2-deoxy-, pentasodium salt (9CI) (CA INDEX NAME)

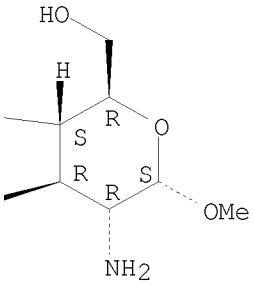
Absolute stereochemistry.

PAGE 1-A



●5 Na

PAGE 1-B



L9 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:115268 CAPLUS
DOCUMENT NUMBER: 110:115268
TITLE: Preparation of a fragment of mucopolysaccharide heparin as an anticoagulant and antithrombotic
INVENTOR(S): Kuzuhara, Hiromi; Ichikawa, Yukitaka; Kasama, Toshio; Iwata, Yoshinori; Kadota, Ryuji
PATENT ASSIGNEE(S): Institute of Physical and Chemical Research, Japan; Kodama, Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63218691	A	19880912	JP 1987-53401	19870309

PRIORITY APPLN. INFO.: JP 1987-53401 19870309
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title pentasaccharide (I; R = NHSO3Na, R1 = R2 = SO3Na, R3 = H, R4 = Na) (II), useful as an anticoagulant and an antithrombotic, was prepared Glycosidation of a tetrasaccharide III with 6-O-acetyl-2-azido-3,4-di-O-benzyl-α-D-glucopyranosyl bromide (IV) in ClCH2CH2Cl in the presence of CF3SO3Ag, mol. sieves 4A, and 2,4,6-collidine at -15° gave 77% I (R = N3, R1 = Ac, R2 = Bz, R3 = CH2Ph, R4 = Me) which was saponified with 5N aqueous NaOH and aqueous MeOH and then reesterified with diazomethane to give 58%
I (R = N3, R1 = R2 = H, R3 = CH2Ph, R4 = Me). Sulfation of the latter compound with SO3.Et3N in DMF and purification of the product by a Sephadex LH-20
column followed by treatment with SP Sephadex C-25 (Na+ type) gave 80% I (R = N3, R1 = R2 = SO3Na, R3 = CH2Ph, R4 = Me). Hydrogenation of the latter over 10% Pd/C in aqueous MeOH and sulfation of the resulting I (R = NH2, R1 = R2 = SO3Na, R3 = H, R4 = Me) with SO3.Et3N followed by saponification with aqueous NaOH, purification by a Sephadex G-25 (equilibrated with 0.2M aqueous
NaCl) and treatment with Dowex AG1-X2 (equilibrated with 0.5M aqueous NaCl) gave 16% II. II inhibited CaCl2-induced coagulation of sheep blood plasma with 60 U/mg vs. 155 U/mg for heparin. An injection formulation containing II 15, NaHCO3 0.2, NaCl 0.4 g, and H2O 100 mL was described.

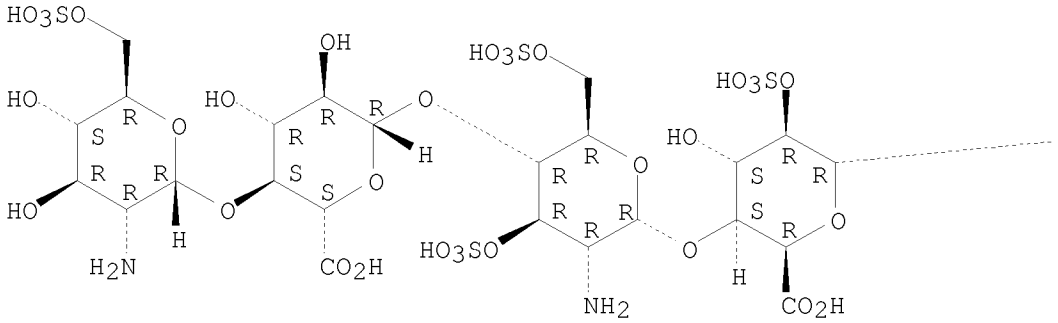
IT 119254-84-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, as anticoagulant and antithrombotic)

RN 119254-84-1 CAPLUS

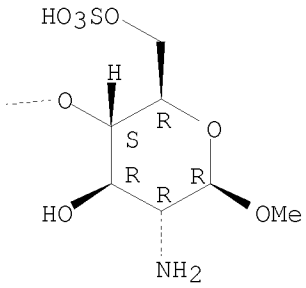
CN β-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate), heptasodium salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



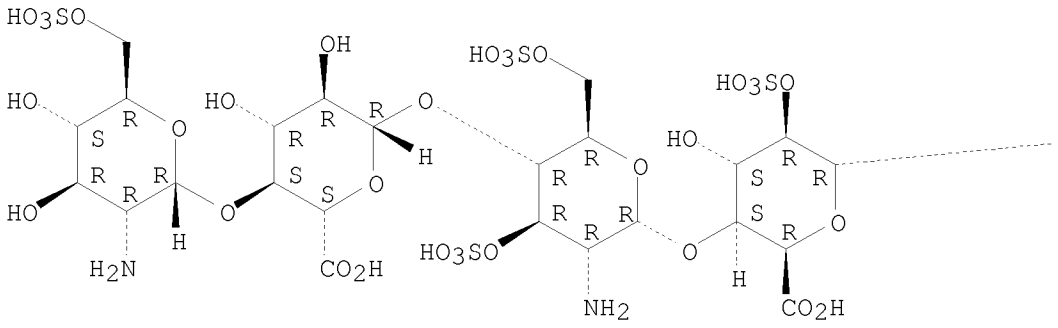
●7 Na



L9 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1988:423222 CAPLUS
DOCUMENT NUMBER: 109:23222
TITLE: Synthesis of heparin fragments: a methyl α-pentaoside with high affinity for antithrombin III
AUTHOR(S): Petitou, Maurice; Duchaussoy, Philippe; Lederman, Isidore; Choay, Jean; Jacquinet, Jean Claude; Sinay, Pierre; Torri, Giangiacomo
CORPORATE SOURCE: Inst. Choay, Paris, 75782, Fr.
SOURCE: Carbohydrate Research (1987), 167, 67-75
CODEN: CRBRAT; ISSN: 0008-6215
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:23222
GI For diagram(s), see printed CA Issue.
AB The synthesis is described of the Me α-glycoside, I (R = Me), of pentasaccharide I (R = H) which represents the sequence in heparin responsible for binding and activation of the anticoagulant protein Antithrombin III. It was obtained in a yield much better than that of the previously synthesized pentasaccharide and exhibited the same biol. properties.
IT 114870-02-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and N-sulfation of)
RN 114870-02-9 CAPLUS
CN α-D-Glucopyranoside, methyl O-2-amino-2-deoxy-6-O-sulfo-α-D-glucopyranosyl-(1→4)-O-β-D-glucopyranuronosyl-(1→4)-O-2-amino-2-deoxy-3,6-di-O-sulfo-α-D-glucopyranosyl-(1→4)-O-2-O-sulfo-α-L-idopyranuronosyl-(1→4)-2-amino-2-deoxy-, 6-(hydrogen sulfate), heptasodium salt (9CI) (CA INDEX NAME)

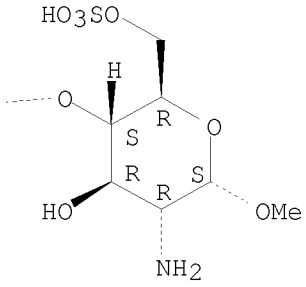
Absolute stereochemistry.

PAGE 1-A



●7 Na

PAGE 1-B



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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	45.11	259.46

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-6.24	-13.26

SESSION WILL BE HELD FOR 120 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 08:25:43 ON 15 NOV 2007